AMENDMENT TO THE CLAIMS:

Claims 1-61

62. (New) An optical-modulated signal processing system comprising:

an interference portion operable to separate a signal including at least a portion of an optical-modulated signal into a plurality of optical signals having predetermined difference in propagation delay and to then combine the optical signals; and

an optical/electrical converting portion, having square-law-detection characteristics, operable to convert the combined optical signals into an electrical signal.

63. (New) The optical-modulated signal processing system according to claim 62,

wherein said system is operable to receive the optical-modulated signal and to acquire a demodulated signal of the optical-modulated signal,

wherein said interference portion and said optical/electrical converting portion constitute a delayed detection system of an optical signal, and

wherein said delayed detection system is operable to simultaneously perform conversion processing of an optical signal into an electrical signal and angle demodulation processing.

64. (New) The optical-modulated signal processing system according to claim 63,

wherein the optical-modulated signal is generated from a 2^n-phase PSK electrical-modulated signal as an original signal,

wherein n is an integer of not less than two,

wherein said interference portion includes a received light dividing portion and first to 2^{n-1} optical interference circuits,

wherein said received light dividing portion is operable to divide an inputted optical signal into 2^{n-1} received lights,

wherein said first to 2^{n-1}th optical interference circuits, provided corresponding to the 2^{n-1}

received lights respectively, are operable to branch each of the received lights into a first optical signal and a second optical signal, to provide the second optical signal with a predetermined delay and then to combine the first and second optical signals, and

wherein the optical/electrical signals are provided corresponding to said first to 2^{n-1} th optical interference circuits respectively.

65. (New) The optical-modulated signal processing system according to claim 64,

wherein said optical-modulated signal is generated from a quadrature PSK electrical-modulated signal as an original signal,

wherein said interference portion includes a received light dividing portion, a first optical interference circuit and a second optical interference circuit,

wherein said received light dividing portion is operable to divide an inputted optical signal into a first received light and a second received light,

wherein a first optical interference circuit is operable to branch the first received light into a first optical signal and a second optical signal, to provide the second optical signal with a first predetermined delay and then to combine the first and second optical signals,

wherein said second optical interference circuit is operable to branch the second received light into a first optical signal and a second optical signal, to provide the second optical signal with a second predetermined delay and then to combine the first and second optical signals, and

wherein the first predetermined delay in said first optical interference circuit and the second predetermined delay in said second optical interference circuit are both set to have the absolute magnitude of ½ symbol length of the digital signal and to be in opposite phases to each other.

66. (New) The optical-modulated signal processing system according to claim 62, further comprising:

an optical modulating portion operable to convert an angle-modulated signal into the optical-modulated signal; and

an optical branch portion operable to branch the optical-modulated signal outputted from said

optical modulating portion into at least two signals, a first optical-modulated signal and a second optical-modulated signal,

wherein said interference portion is operable to separate the first optical-modulated signal outputted from said optical branch portion into a plurality of optical signals having predetermined difference in propagation delay and then combining the optical signals,

wherein said optical/electrical converting portion comprises a first optical/electrical converting portion and a second optical/electrical converting portion,

wherein said first optical/electrical converting portion, having square-law-detection characteristics, is operable to convert the combined optical signal outputted from said interference portion into an electrical signal, and

wherein said second optical/electrical converting portion, having square-law-detection characteristics, is operable to convert the second optical-modulated signal outputted from said optical branch portion into an electrical signal.

67. (New) The optical-modulated signal processing system according to claim 66, further comprising:

a local light source operable to output a light of a predetermined wavelength; and

an optical combining portion, inserted between said optical branch portion and said second optical/electrical converting portion, operable to combine the second optical-modulated signal outputted from said optical branch portion and the light from said local light source,

wherein said second optical/electrical converting portion is operable to heterodyne detect the combined optical signal outputted from said optical combining portion and then to convert the optical signal into an electrical signal.

68. (New) The optical-modulated signal processing system according to claim 66, further comprising:

a local light source operable to output a light of a predetermined wavelength; and

an optical combining portion, inserted between said optical modulating portion and said

optical branch portion, operable to combine the optical-modulated signal outputted from said optical modulating portion and the light from said local light source,

wherein said second optical/electrical converting portion is operable to heterodyne detect the second optical-modulated signal outputted from said optical branch portion and the optical-modulated signal into an electrical signal.

69. (New) The optical-modulated signal processing system according to claim 62, further comprising:

an optical modulating portion operable to convert an angle-modulated signal into an optical-modulated signal;

a local light source operable to output a light of a predetermined wavelength;

an optical combining portion operable to combine the optical-modulated signal outputted from said optical modulating portion and the light from said local light source; and

a dividing portion operable to separate the electrical signal outputted from said optical/electrical converting portion for each of frequency components and to output the electrical signals,

wherein said interference portion is operable to separate the combined optical signal outputted from said optical combining portion into a plurality of optical signals having predetermined difference in propagation delay and then to combine the optical signals.

70. (New) The optical-modulated signal processing system according to claim 62, further comprising:

an optical modulating portion operable to convert an angle-modulated signal into an optical-modulated signal;

an optical branch portion operable to branch the optical-modulated signal outputted from said optical modulating portion into at least two signals, a first optical-modulated signal and a second optical-modulated signal; and

a local oscillation portion operable to convert an unmodulated signal of a predetermined

frequency,

wherein said interference portion is operable to separate the first optical-modulated signal outputted from said optical branch portion into a plurality of optical signals having predetermined difference in propagation delay and then to combine the optical signals,

wherein said optical/electrical converting portion comprises a first optical/electrical converting portion and a second optical/electrical converting portion,

wherein said first optical/electrical converting portion, having square-law-detection characteristics, is operable to convert the combined optical signal outputted from said interference portion into an electrical signal;

wherein said second optical/electrical converting portion, having square-law-detection characteristics and a bias which is modulated with the unmodulated signal from said local oscillation portion, is operable to convert the second optical-modulated signal outputted from said optical branch portion into an electrical signal.

71. (New) The optical-modulated signal processing system according to claim 62, further comprising:

an optical modulating portion operable to convert an angle-modulated signal into an optical-modulated signal;

an optical branch portion operable to branch the optical-modulated signal outputted from said optical modulating portion into at least two signals, a first optical-modulated signal and a second optical-modulated signal; and

a local oscillation portion operable to output an unmodulated signal of a predetermined frequency; and

a mixing portion,

wherein said interference portion is operable to separate the first optical-modulated signal outputted from said optical branch portion into a plurality of optical signals having predetermined difference in propagation delay and then to combine the optical signals,

wherein said optical/electrical converting portion comprises a first optical/electrical

converting portion and a second optical/electrical converting portion,

wherein said first optical/electrical converting portion, having square-law-detection characteristics, is operable to convert the combined optical signal outputted from the interference portion into an electrical signal,

wherein said second optical/electrical converting portion, having square-law-detection characteristics, is operable to convert the second optical-modulated signal outputted from said optical branch portion into an electrical signal,

wherein said mixing portion is operable to mix the electrical signal outputted from said second optical/electrical converting portion and the unmodulated signal outputted from said local oscillation portion and to output resultant signals.

72. (New) The optical-modulated signal processing system according to claim 62, further comprising:

an angle modulating portion operable to convert a first electrical signal into an angle-modulated signal;

a combining portion operable to combine the angle-modulated signal and a second electrical signal;

an optical modulating portion operable to convert the combined signal outputted from said combining portion into an optical modulated signal; and

an optical branch portion operable to branch the optical modulated signal outputted from said optical modulating portion into at least two signals, a first optical-modulated signal and a second optical-modulated signal,

wherein said interference portion is operable to branch the first optical modulated signal outputted from said optical branch portion into a plurality of optical signals having predetermined difference in propagation delay and then to combine the optical signals,

wherein said optical/electrical converting portion comprises a first optical/electrical converting portion and a second optical/electrical converting portion,

wherein said first optical/electrical converting portion, having square-law-detection

characteristics, is operable to convert the combined optical signal outputted from said interference portion into an electrical signal, and

wherein said second optical/electrical converting portion, having square-law-detection characteristics, is operable to convert the second optical-modulated signal outputted from said optical branch portion into an electrical signal.

73. (New) The optical-modulated signal processing system according to claim 72, wherein an occupied frequency band of the first electrical signal, an occupied frequency band of the second electrical signal and an occupied frequency band of the angle-modulated signal do not overlap with each other.

74. (New) The optical-modulated signal processing system according to claim 72, further comprising:

a first signal processing portion operable to limit the occupied frequency band of the first electrical signal; and

a second signal processing portion operable to limit the occupied frequency band of the second electrical signal.

75. (New) The optical-modulated signal processing system according to claim 74, further comprising:

a third signal processing portion operable to pass only a frequency component corresponding to the occupied frequency band of the first electrical signal as to the electrical signal outputted from said first optical/electrical converting portion and to reproduce waveform information which was lost by the band limitation in said first signal processing portion; and

a fourth signal processing portion operable to pass only a frequency component corresponding to the occupied frequency band of the second electrical signal as to the electrical signal outputted from said second optical/electrical converting portion and to reproduce waveform information which was lost by the band limitation in said second signal processing portion.

76. (New) The optical-modulated signal processing system according to claim 62, further comprising:

a plurality of angle modulating portions operable to convert each of a plurality of electrical signals into angle-modulated signals;

a combining portion operable to combine the angle-modulated signals outputted from said plurality of angle modulating portions;

an optical modulating portion operable to convert the combined signal outputted from said combining portion into an optical-modulated signal;

an optical branch portion operable to branch the optical-modulated signal outputted from said optical modulating portion into a plurality of optical-modulated signals; and

a plurality of optical signal processing portions, provided corresponding to the plurality of optical-modulated signals outputted from said optical branch portion respectively, each being operable to perform predetermined optical signal processing and then to individually reproduce a plurality of electrical signals,

wherein said interference portion comprises a plurality of interference portions,

wherein said optical electrical converting portion comprises a plurality of optical/electrical converting portions, and

wherein each of said optical signal processing portions includes:

one of said plurality of interference portions for separating the optical-modulated signal outputted from said optical branch portion into a plurality of optical signals having difference in propagation delay decided according to frequencies of angle-modulated signals to be acquired by demodulation and then for combining the optical signals, and

one of said plurality of optical/electrical converting portions, having squarelaw-detection characteristics, for converting the combined optical signal outputted from said interference portion into an electrical signal.

77. (New) The optical-modulated signal processing system according to claim 76, wherein occupied frequency bands of the plurality of electrical signals and occupied frequency bands of the

plurality of angle-modulated signals do not overlap with each other.

78. (New) The optical-modulated signal processing system according to claim 76, further comprising a plurality of signal pre-processing portions operable to limit the occupied frequency bands of the plurality of electrical signals.

79. (New) The optical-modulated signal processing system according to claim 78, wherein each of said plurality of optical signal processing portions further includes a signal post-processing portion operable to pass a frequency component corresponding to an occupied frequency band of an electrical signal to be reproduced and to reproduce waveform information which was lost by the band limitation in said signal pre-processing portion as to the electrical signal outputted from said optical/electrical converting portion.

80. (New) The optical-modulated signal processing system according to claim 62, further comprising:

an optical modulating portion operable to convert a multichannel angle-modulated signal into an optical-modulated signal;

an optical branch portion operable to branch the optical-modulated signal outputted from said optical modulating portion into a plurality of optical-modulated signals; and

a plurality of optical signal processing portions, provided corresponding to the plurality of optical-modulated signals outputted from said optical branch portion respectively, each being operable to perform predetermined optical signal processing and then to reproduce an electrical signal on an individual channel,

wherein said interference portion comprises a plurality of interference portions,

wherein said optical electrical converting portion comprises a plurality of optical/electrical converting portions, and

wherein each of said optical signal processing portions includes:

one of said plurality of interference portions for separating the optical-modulated signal

outputted from said optical branch portion into a plurality of optical signals having difference in propagation delay decided according to frequencies of electrical signals on channels to be reproduced and then for combining the optical signals; and

one of said plurality of optical/electrical converting portions, having square-law-detection characteristics, for converting the combined optical signal outputted from said interference portion into an electrical signal.